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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,940	01/09/2002	Allon Adir	ADIR1	5128

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EXAMINER	
SUN, XIUQIN	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,940	ADIR ET AL.	
	Examiner	Art Unit	
	Xiuqin Sun	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-23 and 25-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8-23 and 25-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Upon further consideration, the allowable subject matter of claims 11, 15, 20, 28, 35, 40, 48 and 53 as indicated in the last Office Action mailed on 03/01/2004 has been withdrawn and replaced by the following office action. Any inconvenience to the Applicant(s) is regretted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-6, 8-10, 21-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shrote (U.S. Pat. No. 5774358) in view of Katz et al. (U.S. Pat. No. 4493027).

Regarding claim 1:

Shrote teaches a system, method and computer software product comprising a computer-readable medium for verification of a system design, comprising: a test program generator that accepts a sequence of statements including at least one event (Fig. 2; col. 6, lines 9-19; col. 8, lines 29-40 and col. 10-11, lines 66-9); an event handling facility in said test program generator (col.

9-10, lines 13-33 and col. 11, lines 10-50); and wherein responsive to a triggering condition of said event said test program generator emits test program instructions in response to one of a primary input stream and an alternate input stream, said alternate input stream being represented in a body of said event (col. 9-10, 13-46; and col. 11, lines 10-50).

Regarding claims 4 and 21:

Shrote further teaches a method of test program generation, comprising the steps of defining a set of statements, said set of statements including an event (Fig. 2; col. 6, lines 9-19; col. 8, lines 29-40 and col. 10-11, lines 66-9); responsive to said set of statements generating a sequence of test program instructions for a target (col. 6, lines 9-19; col. 8, lines 29-40 and col. 10-11, lines 66-9); while performing said step of generating said sequence of test program instructions determining if a condition of said event is satisfied (col. 9-10, lines 13-33 and col. 11, lines 10-50); and responsive to said step of determining generating an alternate sequence of test program instructions (col. 9-10, 13-46; col. 11, lines 10-67 and col. 12, lines 1-14).

Regarding claims 3, 5, 6, 8-10, 22, 23 and 25-27:

Shrote further teaches: a conditional statement of each of said events references a current state of a test program that is generated by said test program generator (col. 9-10, 13-46; col. 11, lines 10-50 and col. 11-12, lines 51-14). Shrote further teaches: said step of determining is performed by evaluating a state of said target prior to inclusion of an instruction in said first sequence of test program instructions (col. 9-10, 13-46; col. 11, lines 10-67 and col.12, lines 1-14);

at least a portion of said sequence of test program instructions are randomly generated (col. 1-2, lines 56-2); each of said events has an identifying name attribute (col. 9-10, lines 34-33); each of said events has a triggering condition attribute (col. 9-10, lines 23-46); and each of said events comprises an input stream entity (Fig. 2). Shrote further teaches: said computer software product further comprising the steps of accessing a knowledge base having information of said target stored therein, and said step of generating said sequence of test program instructions comprises selecting members of said sequence of test program instructions in accordance with said information in said knowledge base, wherein said step of selecting members is biased by said set of statements (col. 6, lines 20-29 and col. 12, lines 15-26); said event comprises a body that is a template for generation of said alternate sequence of test program instructions (col. 12, lines 15-26).

Shrote does not mention explicitly: said even includes a plurality of events that are processed in order of priority values thereof in said event handling facility; and said step and means of determining if said condition is satisfied is performed with respect to each of said events in an order of said priority value thereof.

Katz et al. disclose a method for executing call and return instructional programs in a digital computer system operating under control of microcode (see Abstract), and teach: a plurality of events that are processed in order of priority values thereof in said event handling facility (col. 222, lines 14-45; col. 226, lines 29-37; col. 236, lines 3-24; col. 237, lines 20-38 and col. 321, lines 1-10); and a

step and means of determining if a predetermined condition is satisfied, wherein the step and means is performed with respect to each of said events in an order of said priority value thereof (col. 222, lines 14-45; col. 226, lines 29-37; col. 236, lines 3-24; col. 237, lines 20-38 and col. 321, lines 1-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Katz et al. into the invention of Shrote in order to provide a practical and efficient scheme to process a plurality of events and use the resultant output for decision making controls (col. 222, lines 14-45 and col. 237, lines 20-38).

4. Claims 11 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shrote (U.S. Pat. No. 5774358) in view of Katz et al. (U.S. Pat. No. 4493027).

Shrote teaches a method and computer software product comprising the steps of defining a set of statements, said set of statements including an event (Fig. 2; col. 6, lines 9-19; col. 8, lines 29-40 and col. 10-11, lines 66-9); responsive to said set of statements generating a sequence of test program instructions for a target (col. 6, lines 9-19; col. 8, lines 29-40 and col. 10-11, lines 66-9); while performing said step of generating said sequence of test program instructions determining if a condition of said event is satisfied (col. 9-10, lines 13-33 and col. 11, lines 10-50); and responsive to said step of determining generating an alternate sequence of test program instructions (col. 9-10, 13-46; col. 11, lines 10-67 and col. 12, lines 1-14). Shrote further teaches: each of said events has an identifying name attribute (col. 9-10, lines 34-33); each of said

events has a triggering condition attribute (col. 9-10, lines 23-46); and each of said events comprises an input stream entity (Fig. 2).

Shrote does not mention explicitly: said even includes a priority value.

Katz et al. disclose a method for executing call and return instructional programs in a digital computer system operating under control of microcode (see Abstract), and teach: a plurality of events, each of said events comprising a priority value, that are processed in order of priority values thereof in said event handling facility (col. 222, lines 14-45; col. 226, lines 29-37; col. 236, lines 3-24; col. 237, lines 20-38 and col. 321, lines 1-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Katz et al. into the invention of Shrote in order to provide a practical and efficient scheme to process a plurality of events (Katz et al., col. 222, lines 14-45 and col. 237, lines 20-38).

5. Claims 12-20, 29-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shrote (U.S. Pat. No. 5774358) in view of Katz et al. (U.S. Pat. No. 4493027) and Matsuba et al. (U.S. Pat. No. 6467078).

Regarding claim 12, 29 and 41:

In addition to the subject matter discussed above, Shrote further teaches: a method, an apparatus and a computer software product for generating test programs, comprising the steps of: providing a test program generation engine (Fig. 2); coupling said test program generation engine to a design specification of a target, wherein said design specification comprises a knowledge base (col. 6, lines 20-29); introducing a set of statements into said test program generation

engine, said set of statements including an event (Fig. 2; col. 6, lines 9-19; col. 8, lines 29-40 and col. 10-11, lines 66-9); determining whether a triggering condition of said event is satisfied (col. 9-10, lines 13-33 and col. 11, lines 10-50); in a first case, wherein said triggering condition is not satisfied, causing said test program generation engine to respond to said set of statements to generate a first sequence of test program instructions that can be executed on said target (col. 9-10, 13-46; col. 11, lines 10-67 and col. 12, lines 1-14); and in a second case, wherein said triggering condition is satisfied, causing said test program generation engine to respond to an alternate set of statements of said event to generate a second sequence of test program instructions that can be executed on said target (col. 9-10, 13-46; col. 11, lines 10-67 and col. 12, lines 1-14).

Regarding claims 13-20, 30-40 and 42-53:

Shrote further teaches: at least a portion of said first sequence of test program instructions and said second sequence of test program instructions is generated randomly (col. 1-2, lines 56-2); said set of statements is introduced into said test program generation engine as an input file (Fig. 2); said event has an identifying name attribute (col. 9-10, lines 34-33); said event has a triggering condition attribute (col. 9-10, lines 23-46); said step of evaluating said state is performed subsequent to said simulated execution of said test program instruction (col. 11-12, lines 51-14); said step of evaluating said state is performed a first time prior to a simulated execution of said test program instruction and is performed a second time subsequent to said simulated execution thereof (col. 11-12, lines 51-14).

The combination of Shrote and Katz et al. does not mention: coupling said test program generation engine to an architectural simulator of said target; said simulator for simulating said simulated execution.

Matsuba et al. teache a method and system for generating test program (see Abstract), comprising: a test program generator which is coupled to an architecture simulator; and said simulator is used for simulating said simulated execution (col. 2, lines 51-67; col. 3, lines 1-13, lines 39-44 and lines 58-67 and col. 4, lines 1-3 and lines 15-27).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Matsuba et al. into the combination of Shrote and Katz et al. in order to execute the generated test programs on said simulator to accomplish the desired verification (Matsuba et al., col. 4, lines 15-27).

Prior Art Citations

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Boughner et al. (U. S. Pat. No. 5983001) disclose a Method and system for facilitating the automatic creation of test scripts.
2) Passova (U. S. Pat. No. 6671874) discloses an universal verification and validation system and method of computer-aided software quality assurance and testing.

3) Szermer (U. S. Pat. No. 5913023) discloses a method for automated generation of tests for software.

4) Sugamori et al. (U. S. Pub. No. 2003/0074153) disclose an application specific event based semiconductor memory test system.

5) Pauwels et al. (U. S. Pat. No. 5913023) disclose a test system for verifying angle/time based systems and method therefore.

6) Ellis et al. (U. S. Pat. No. 5684946) disclose an apparatus and method for improving the efficiency and quality of functional verification.

7) Brummel (U. S. Pat. No. 6564178) discloses a method and apparatus for evaluating processors for architectural compliance.

Response to Arguments

7. The cancellation of claims 2, 7 and 24 are acknowledged.

Applicant's arguments with respect to claims 1, 3-6, 8-10, 12-14, 16-19, 21-23, 25-27, 29-34, 36-39, 41-47 and 49-52 have been considered but are moot in view of the new ground(s) of rejection.

Claims 1, 3-6, 8-10, 12-14, 16-19, 21-23, 25-27, 29-34, 36-39, 41-47 and 49-52 are rejected as new art (U.S. Pat. No. 4493027 to Katz et al., and U.S. Pat. No. 6467078 to Matsuba et al.) has been found to teach the subject matter recited in these claims and argued by the Applicant. Detailed response is given in sections 2-5 as set forth above in this Office Action.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun
Examiner
Art Unit 2863

XS
June 10, 2004

John Barlow
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